

### How Axes are Made.

The materials used in the production of axes are iron, steel, coal, borax, grindstones, emery and glue. Formerly foreign material exclusively was used, but now everything is American except the grindstones and the material of which the emery is made. Let us follow a piece of rough iron through the various processes until it emerges a finely-polished axe.

First, bar iron two and three-quarters by three-quarters of an inch is placed between large shears and junked up into proper lengths. Each piece is called a pattern, two of which are worked together. One lies in the furnace heating while the other is worked by the forger. The pattern, at white heat, is taken to a trip hammer, furnished with suitable dies, where the ends are drawn and placed, so that when brought together the eye is formed, a section in the middle being left to form the head of the axe. The pattern being drawn is now turned, so as to bring the ends together, a slug being placed between the ends to give greater thickness below the eye of the axe. When at welding heat the pattern is taken to a trip hammer and welded solid below the eye, forming what is termed the poll. Two men make the polls; in fact, this is the custom all the way through, each gang performing a certain part of the work. The poll is taken to the bitt trimmer, where it is trimmed to the required form. It is now ready for the steel.

The steel which forms the edge of the axe comes in bars, and is cut up and prepared by having the edges turned up. The steel is now placed on to the poll, the edges coming up on either side. The steel is well supplied with ground borax, without which a union of the iron and steel cannot be had. After heating it goes to another trip hammer, the iron and steel are firmly welded and the bitt drawn. At this point the material begins to look like an axe. At the next heating the axe is taken to another hammer, where the steel is condensed and refined in the most thorough manner; then to another hammer, where the iron from the eye down to the steel is swaged. The axe is placed in another furnace, so that the head will heat while the bitt remains comparatively cool. When hot the head is squared under another hammer, the eye perfected, and the axe finally straightened. We now have a perfect axe in the rough.

The next operation is the tempering. The axes are slowly and evenly heated, when they are plunged into brine, which makes them as hard and brittle as glass. Again they are placed over a fire until the temper is reduced to the required point, which is known by the color of the metal, and again submerged in water. The next process is the grinding, which is done in two large revolving stones, half tons. A stone of the latter size is used up in twelve days. All the imperfections are ground out, the axe turned and edged. Next it goes to the polishing room, where it is polished on an emery wheel until it becomes as bright as a mirror. Here the axes are weighed, stamped, bronzed or plated, when a perfect axe is made and ready for packing.

### American Silk.

Perhaps the craze which most frequently agitates the agricultural community is that of producing silk for the home manufacture. There is no difficulty in breeding and rearing silk worms, if one has time, patience and mulberry trees at command, but there is no market for the cocoons, the manufacturer wanting reeled silk, not cocoons. The manufacture of silk thread, Mr. Wyckoff, tells us, though it has now outgrown foreign competition, was a long time "in the wilderness." American housewives had a prejudice in favor of Italian sewing silk, and Massachusetts manufacturers had to hammer them by affecting foreign packages and wrappers, and commanding "Italian" trade names. The sewing machine has completely revolutionized the business and brought about the invention of machine twist. American sewing silk has an extremely high standard of purity, a fact which has naturally helped to drive out English goods, which, by the addition of dye, are made to yield from eighteen to twenty-five ounces for each pound of raw silk.

Thousands of cords of white birch from Maine are annually converted into spools, and many English makers come to the United States for these little articles, which an ingenious machine centers and prints—printing on the wood is preferred to labelling—at the rate of one hundred a minute. The cabinets given by manufacturers to new customers with the first purchase cost about one and a half per cent of the total sales; one firm has spent \$150,000 in this sort of advertising. A \$50 cabinet is nothing out of the way, and at times their value will reach \$300 or \$450. In dress goods, plain black fabrics are the hardest to make, as every defect in them is perceptible, and until a very recent period their successful manufacture was scarcely expected in the United States, principally on account of the costliness of the skilled labor required.

Now, nearly a third of the plain silks are made here and the industry is making steady progress, thanks especially to the care given to the quality of the article, while European manufacturers are only too apt to load theirs with dye. A simple test is to burn a small quantity of the threads; pure silk will immediately crisp and leave a pure charcoal; heavily dyed silk will smoulder and leave a yellow, greasy ash. Very few

velvets are manufactured in the United States, but the production of figured dress silks, grenadines, satins and the like, is large and growing; American linings have a high reputation, and the American ingenuity has proved equal to the task of producing a satisfactory and lasting silk for umbrellas. Silk handkerchiefs have come into vogue during the last eight years, and especially since the Centennial Exhibition. The manufacture of ribbons began in 1861 as an experiment, there being a demand for particular shades which, it was thought, could be more speedily met by making than by importing. Now, the business has grown to great proportions. Curiously enough, nearly all the designs for American ribbons originate in American factories, frequently months in advance of the introduction of the goods into the market.—Herald.

### The Wrong Man.

E. W. Harleman, of Cincinnati, for the past twenty-five years car inspector for the Erie Railroad, now of the Erie and Wabash line, was in the city recently, and says in all his travels from the Atlantic to the Pacific and from the lakes to the gulf he was never picked up for a sucker until yesterday morning. Being a stranger in the city, he was walking about, admiring the wide and dusty streets and fine business blocks, and when near the City Hall was accosted by a young man with the salutation, "Mr. Johnson, how do you do?" at the same time rushing up and extending a hand for a shake.

"You have made a mistake," said Mr. Harleman, "my name is not Johnson."

"What! ain't you James Johnson, of Chicago?"

"No, sir; my name is Harleman, and I am from Dayton, O.," responded the railroad.

The fellow apologized most profusely, adding that Mr. Harleman was the dead image of James Johnson, of Chicago, and walked off.

"A few moments later," narrates Mr. Harleman, "another man came up and extended his hand saying, 'Ah, Mr. Harleman, I am glad to have met you. I used to know you in Dayton O., but I presume you have forgotten me. My father is Smith, the dry-goods merchant.'"

"Of course I tumbled to the racket, then, but I said, 'So you are young Smith, are you? What are you doing up here?'"

"Come on an excursion to see the town," responded Smith.

"By what road did you come?" queried Harleman.

"By the Grand Trunk," said Harleman, "before you go any further with the confidence business you ought to post yourself on railroads. The Grand Trunk doesn't run to Dayton, as any ten-year-old boy can tell you. Then learn to distinguish between a real greenhorn and one who may possibly look like one."

"And," added Harleman, "you ought to have seen that fellow's face as he scooted?"—Detroit Free Press.

### The True Wife.

Oftentimes I have seen a tall ship glide by against the tide if drawn by some invisible bowline, with a hundred strong arms pulling it. Her sails were unfurled, her streamers were drooping, she had neither side-wheel nor stern-wheel; still she moved on stately, in serene triumph as with her own life. But I knew that on the other side of the ship, hidden beneath the great bulk that swam so majestically, there was a little toilsome steam-tug, with a heart of fire, and arms of iron, that was tugging it bravely on; and I knew that if the little steam-tug untwined her arm and left the ship, it would wallow and roll about and drift hither and thither, and go off with the reflux tide, no man knows whither. And so I have known more than genius, high-decked, full-freighted, idle-sailed, gay-pennoned, but that for the bare, toiling arms and warm, beating heart of the faithful little wife that nestles close to him, so that no wind or wave could part them, would have gone down with the stream, and have been heard of no more.—Oliver Wendell Holmes.

### The "Poor Girls."

The poorest girls in the world are those who have never been taught to work. There are thousands of them. They have been taught to dispense labor and depend upon others for a living and are perfectly helpless. If misfortune comes upon their friends, as it often does, their case is hopeless. The most forlorn women on earth belong to this class. It belongs to parents to protect their daughters from this deplorable condition. They do them a great wrong if they neglect it. Every daughter ought to be taught to earn her own living. The rich as well as the poor require this training. The wheel of fortune rolls swiftly round—the rich are very likely to become poor, and the poor rich. Skill to labor is no disadvantage to the rich, and indispensable to the poor. Well-to-do parents must educate the children to work. No reform is more imperative than this.

"I have divided my subject," began the parson, "into two heads." "Two heads with but a single thought," whispered Fogg to Mrs. F., and then he closed his eyes for his usual nap.—Boston Transcript.

### It Belonged to the "Kernel."

From the Washington (D. C.) Star.

Capt. Paul Boynton, the famous swimmer, (who is now in this city in company with that other marine wonder, the big whale, on exhibition at the intersection of Fourteenth street and Maryland avenue,) tells some funny stories of his lonesome voyage down the Arkansas River. On one occasion he was paddling down the stream, when he saw ahead of him a colored man lazily rowing a canoe. Drawing within hailing distance of the man without being observed, the captain raised himself in the water and shouted:

"Hello, I've caught you this time, old man."

The rower turned and saw the awful-looking object in the water. Boynton does look diabolical in his water-gory, and he says if ever there was a scared darkey it was the one in the canoe. The old fellow's eyes fairly popped as he ejaculated:

"Dat's de devil this time, sure. Please lem me off dis time, boss," he pleaded. "Deed and deed it ain't mine; it belongs to de kernel."

Seeing the mysterious figure still approaching, the old man grabbed his oars and "pulled for the shore." As the boat struck the bank he jumped ashore and made for the woods, not stopping to look behind him. Boynton was curious enough to see what it was that "belonged to the kernel," and looking inside the boat, he found a demijohn of moonshine whisky with a corn-cob stopper. That was not the only time the captain was taken to be "old nick," for coming ashore one day in quest of information, he tackled a native, and got about as queer answers as did the famous "Arkansas traveler." Getting out of patience finally, Boynton asked the native:

"What do you take me for, anyhow?"

"Well, stranger," drawled the Arkansas, "I take you to be the devil just come up to cool off."

### Olive-Trees.

The olive is largely cultivated in the Balearic Islands of the Mediterranean. The olea-tree, upon which the fruit is grown, originally appears wild in the mountain-land as a shrub producing a fruit which bears no oil. When brought under cultivation grafting is practiced. The ancient historians of Majorca recount that in olden times the olive was unknown to the Balearic Islands, and that the art of grafting was taught to the islanders by the Carthaginians. By the appearance, however, of some of the enormous and ancient-looking olive-trees to be seen now in Majorca, one would be tempted to believe that their existence dates as far back as the period to which the historians refer. An intelligent Majorcan farmer, being asked how old he thought some of these trees were, replied:

"I believe they may well date from the time of the flood."

It is a remarkable feature in the growth of these magnificent trees that one never sees two alike. Almost all, in the course of time, assume most grotesque forms; and upon old trees whose trunks are rent open and torn into half a dozen shreds is often to be seen the finest crop of fruit, while in Majorca they have in some places attained proportions akin to those of the forest trees of the tropics.

DRINK, says an exchange, weakens the system. Yes, but just think how it strengthens the breath.

## TUTT'S PILLS

**A DISORDERED LIVER IS THE BANE** of the present generation. It is for the cure of this disease and its attendants, BICK-HEADACHE, BILIOUSNESS, DYSPEPSIA, CONSTIPATION, PILES, etc., that TUTT'S PILLS have gained a world-wide reputation. No Remedy has ever been discovered that acts so gently on the digestive organs, giving them vigor to assimilate food. As a natural result, the Nervous System is braced, the Muscles are developed, and the Body Robust.

**Chills and Fever.** E. RIVALL, a Planter at Bayou Sara, La., says: My plantation is in a malarial district. For several years I could not make half a crop on account of bilious diseases and chills. I was nearly discouraged when I began the use of TUTT'S PILLS. The result was marvellous; my laborers soon became hearty and robust, and I have had no further trouble.

They relieve the engorged Liver, cleanse the Blood from poisonous humors, and cause the bowels to act naturally, without which no one can feel well. Try this remedy fairly, and you will gain a healthy Digestion, Vigorous Body, Pure Blood, Strong Nerves, and a Sound Liver. Price, 25 Cents. Office, 35 Murray St., N. Y.

## TUTT'S HAIR DYE.

GRAY HAIR OF WHISKERS changed to a Glossy Black by a single application of this DYE. It imparts a natural color, and acts instantaneously. Sold by Druggists, or sent by express on receipt of One Dollar. Office, 35 Murray Street, New York.

**Dr. TUTT'S MARK.** Valuable Information and Useful Receipts will be mailed FREE on application.

**THE DISEASES OF YOUTH AND MANHOOD** A GUIDE TO HEALTH WITH-OUT MEDICINE. BY A PHYSICIAN of 25 years' experience. Don't poison your system with Drugs, but get this Book and avoid Quacks. "Prescription free" and Electric Belt. Hamburg, which it exposes. Price 25c. Address THE PUBLISHER, Box 234, Milwaukee, Wis.

## D. HARTER'S

IRON TONIC

MANUFACTURED BY THE DR. HARTER MEDICINE CO., 213 NORTH MAIN STREET, ST. LOUIS.

"IT WORKS LIKE A CHARM." Affords instant relief in all cases of Rheumatism, Neuralgia and Sciatica.

## RENNE'S

Mixed with a little molasses or honey, will cure speedily the worst case of Cough, Cold or Hoarseness. Relieves Diarrhoea and Dysentery in a manner so grateful that its action is never succeeded by constipation. Soothes the pains and gripings in children, and meets all their ailments.

## PAIN KILLING

Affords immediate relief in Diphtheria and all affections of the throat. Cures stiff or swollen joints, and removes crick in the back at once. Has no equal in the world for burns, scalds or abrasions of the skin.

Cures Canker, Sore Mouth, Headache, Toothache and Earache.

## MAGIC

Cures Chapped Hands and Chillsblains, Sore Scalp and Eruptions of the Skin, Sprains and Strains of any of the muscles of the body.

It works like a charm in every ailment peculiar to ladies.

## OIL

Buy it of the Druggist or Merchant where you trade. If they have not got it on hand they will send for it, at your request, and sell you Renne's Pain Killing Magic Oil at lowest price at retail.

Sold by Druggists, Grocers and Dealers in Medicines.

## THE BEST OF ALL LINIMENTS FOR MAN AND BEAST.

For more than a third of a century the Mexican Mustang Liniment has been known to millions all over the world as the only safe reliance for the relief of accidents and pain. It is a medicine above price and praise—the best of its kind. For every form of external pain the

## MEXICAN

Mustang Liniment is without an equal. It penetrates flesh and muscle to the very bone—making the continuance of pain and inflammation impossible. Its effects upon Human Flesh and the Brute Creation are equally wonderful. The Mexican

## MUSTANG

Liniment is needed by somebody in every house. Every day brings news of the agony of an awful scald or burn, of a painful rheumatic attack, of a valuable horse or ox saved by the healing power of this

## LINIMENT

which speedily cures such ailments of the HUMAN FLESH as Rheumatism, Swellings, Stiff Joints, Contracted Muscles, Burns and Scalds, Cuts, Bruises and Sprains, Poisonous Bites and Stings, Stiffness, Lameness, Old Sores, Ulcers, Frostbites, Chillsblains, Sore Nipples, Caked Breasts, and indeed every form of external disease. It heals without scars.

For the BRUTE CREATION it cures Sprains, Swinny, Stiff Joints, Founder, Hocks, Hoof Diseases, Foot Rot, Screw Worms, Scab, Hollow Horn, Scratches, Windgalls, Spavin, Thrush, Ringbone, Old Sores, Poll Evil, Film upon the Sight and every other ailment to which the occupants of the Stable and Stock Yard are liable.

The Mexican Mustang Liniment always cures and never disappoints; and it is, positively,

## THE BEST OF ALL LINIMENTS FOR MAN OR BEAST.

## FREE! RELIABLE SELF-CURE.

A favorite prescription of one of the most noted and successful specialists in the U. S. now retained, for the cure of Nervous Debility, Lost Manhood, Weakness and Decay, sent in plain sealed envelope free. Inquire and fill it. Address DR. WARD & CO., Little Rock, Mo.



## CURE

Stick Headache and relieve all the troubles incident to a bilious state of the system, such as Dizziness, Nausea, Browsiness, Distress after eating, Flatulency, Etc. With their most remarkable success has been shown in curing

## SICK

Headache, yet Carter's Little Liver Pills are equally valuable in Constipation, curing and preventing this annoying complaint, while they also correct a disordered state of the stomach, stimulate the liver and regulate the bowels. Even if they only cured

## HEAD

Aches they would be almost priceless to those who suffer from this distressing complaint; but fortunately their goodness does not end here, and those who once try them will find these little pills valuable in so many ways that they will not be willing to do without them. But after all sick head

## ACHE

Is the bane of so many lives that here is where we make our great boast. Our pills cure it while others do not.

Carter's Little Liver Pills are very small and very easy to take. One or two pills make a dose. They are strictly vegetable and do not gripe or purge, but by their gentle action please all who use them. In vials at 25 cents; five for \$1. Sold by druggists everywhere, or sent by mail.

CARTER MEDICINE CO., New York City.

## BROWN'S

# IRON BITTERS

TRADE MARK

QUALITY PURITY

NOT QUANTITY

ATRUE TONIC

BROWN'S IRON BITTERS are a certain cure for all diseases requiring a complete tonic; especially Indigestion, Dyspepsia, Intermittent Fevers, Want of Appetite, Loss of Strength, Lack of Energy, etc. Enriches the blood, strengthens the muscles, and gives new life to the nerves. Acts like a charm on the digestive organs, removing all dyspeptic symptoms, such as tasting the food, Belching, Heat in the Stomach, Heartburn, etc. The only Iron Preparation that will not blacken the teeth or give headache. Sold by all Druggists at \$1.00 a bottle.

BROWN CHEMICAL CO. Baltimore, Md. Beware of imitations.

BEATTY'S ORDOANS 27 STOPS 10 SET up. Rare Holiday Inducement Ready. Write or call on BEATTY, Washington, N. J.

## NEW RICH BLOOD!

Purges! Purges! Pills make New Rich Blood, and will completely change the blood in the entire system in three months. Any person who will take 1 pill each night from 1 to 12 weeks may be restored to sound health, if such a thing be possible. Sent by mail for 3 letter stamps.

J. S. JOHNSON & CO., Boston, Mass., formerly Hanger, Me.

**AGENTS WANTED** Everywhere to sell the best Family Knitting Machine ever invented. Will knit a pair of stockings, with HEEL and TOE complete, in 20 minutes. It will also knit a great variety of fancy-work for which there is always a ready market. Send for circular and terms to the "Womans Knitting Machine Co., 69 Washington St., Boston, Mass.

## HARRIS REMEDY CO., ST. LOUIS, MISSOURI.

DR. HARRIS' PASTILLE REMEDY

Young Men and others who suffer from Nervous and Physical Debility, Premature Exhaustion and their many gloomy consequences, are quickly and radically cured.

The Remedy is put up in boxes. No. 1 (lasting a month), 50c. No. 2 (lasting 3 months), \$1.00. Sent by mail in plain wrapper. Directions for taking accompany each box. Pamphlet describing this disease and mode of cure sent on application.

## Consult DEBUTTS

and secure the advantages of long experience in curing diseases of the Blood, Skin and Lungs—Nervous Debility, Impotency, Organic Weakness, Gonorrhea, etc.—treated on scientific principles, with safe and sure remedies. Call or write for List of Questions to be answered by those desiring to be cured by me. (Persons suffering from Rheumatism should send their address.) (And learn something of their advantages. It is not a lie.) Address: DR. DEBUTTS, 12 N. 3d St., St. Louis, Mo. ESTABLISHED OVER THIRTY YEARS.